

REMARKS

Claims 2-5, 7-9 and 13-18 are pending in this application. All of the pending claims are rejected. None of the claims are currently amended. Reconsideration and further examination are requested.

The presently claimed invention is related network communications. The internet protocol (IP), which is used extensively in network communications, includes features for providing service differentiation, among other things. For example, an IP header includes a Differentiated Services Code (DSC) field which enables different Per Hop Behaviors (PHBs) at different nodes for different types of traffic. In particular, Diffserv allows a network subscriber to control the quality of service (QOS) that is associated with their traffic by entering into a service level agreement to obtain a desired level of service for traffic at certain nodes. This may be implemented by separating traffic into different flows which receive different treatment. One protocol that may be layered on top IP is IP Security (IPsec). IPsec provides security at the IP layer by enabling a system to select required security protocols, determine the algorithm(s) to use for services, and put in place any cryptographic keys required to provide the requested services. One feature of IPsec is an Authentication Header (AH) which is used to provide connectionless integrity and data origin authentication for IP datagrams, and also to provide protection against replays. The anti-replay (partial sequence integrity) feature helps to counter denial of service (DoS) attacks. A DoS attack is a type of attack that is designed to significantly degrade network performance by flooding the network with traffic. The anti-replay mechanism counters DoS attacks by examining the sequence numbers of received packets, and dropping any packets having duplicate sequence numbers within a predefined time window. However, use DiffServ with IPsec creates a problem because the manipulation of data flows in accordance with DiffServ

creates legitimate duplicate sequence numbers for packets, e.g., a packet at a first service level having the same sequence number as a packet at a second service level, that cause the packets to be discarded by IPsec. The presently recited invention helps to overcome this problem.

Claims 2, 3, 13 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by US 7,260,392 (Kitchin). Claims 2, 13 and 18 (the independent claims) were previously amended to recite that the selected number of previously received packets examined in the step of comparing differs for at least two quality of service levels. At the top of page 2 of the office action the examiner characterizes applicant's previous argument based on those claim amendments as being that Kitchin fails to teach comparison of sequence numbers at different service levels. That characterization is incomplete. Not only is there comparison of sequence numbers at different service levels, but the time window size also differs between service levels. One embodiment of this feature, described at page 11, lines 5-6 of the specification, is where PHBs of lower priority have smaller anti-replay windows than PHBs of higher priority. Note that the claims recite the feature by stating that the **selected number of previously received packets examined** differs for at least two quality of service levels. For example, if service level 1 has a window size of 64 packets and service level 2 has a window size of 32 packets, not only are sequence numbers checked separately at service levels 1 and 2, but the number of packets compared at service level 1 is different from the number of packets compared at service level 2. It is clear from the "response to amendment" and the passages cited against claims 2 and 13 that the examiner has not considered this recited limitation. Since applicant finds no suggestion of the feature in Kitchin, withdrawal of the rejections of claims 2 and 13 is requested.

Claims 3-5, 7-9 and 14-17 are dependent claims which further define the invention, and which are allowable for the same reasons as their respective base claims. Withdrawal of the rejections of claims 3-5, 7-9 and 14-17 is therefore also requested.

Applicants have made a diligent effort to place the claims in condition for allowance. For these reasons, and in view of the previous amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited. Should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicants' Attorney at the number listed below so that such issues may be resolved as expeditiously as possible.

Respectfully Submitted,

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Date

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